

Chapter 3
Data Collection

Data collected was limited to existing information available from a variety of sources and upon field observation. Extensive or detailed field investigation, sub-surface exploration, or opinion for mitigation of environmental concerns was not a part of scope of services.

Previous Studies and Reports

A number of studies have been conducted which directly or indirectly pertain to this Corridor. The following is a synopsis of each study's findings and/or discussion relating to the development of the North-South Expressway. Studies included are:

- A. Corridor Location Study, North-South Expressway, Report No. 3, Final Summary and Recommendations, 1973;
 - B. 1987 Master Plan Compendium Update for the Shreveport Metropolitan Planning Area;
 - C. Highway Feasibility Corridor Study, Kansas City, Missouri to Shreveport, Louisiana, 1988;
 - D. Shreveport-Bossier City Transportation Plan 1990-2010, 1990;
- A. Corridor Location Study, North-South Expressway, Report No. 3, Final Summary and Recommendations, 1973

The purpose of the 1973 Corridor Study was to investigate in detail, the primary proposal of the Shreveport Metropolitan Plan and Transportation Study (SMATS) issued in 1968: "the addition of a north-south-transportation facility to the existing street network as the highest priority project." The study area was a corridor through central Shreveport from the Industrial Loop to Dr. Martin Luther King Drive (formerly Cooper Road).

By means of a three phased study, basic data was collected, a public participation program was carried out, feasible alignments were studied, and a recommended alignment was presented. The recommended alignment was eventually accepted as I-49 through Shreveport.

B. 1987 Master Plan Compendium Update for the Shreveport Metropolitan Planning Area

The purpose of the *Master Plan Compendium Update* is "to knit together many of the widely ranging planning studies completed since 1982 (the last *Master Plan Compendium Update*) into a clear statement as to where the City of Shreveport and Caddo Parish are headed as we look into the 1990's and beyond."

The only reference to the North-South Expressway in this plan falls under the Physical Framework Plan. The first transportation goal listed in the Physical Framework Plan is "to plan, construct, and maintain a network of streets to connect the various developing sectors of the metropolitan area."

The Texarkana Expressway is listed in this category as a major street project designed to improve north-south access in and through the city.

The Texarkana Expressway is described as follows:

"This is another long range project likely to be completed in three phases. The first phase is basically an extension of I-49 from I-20 to I-220; then continuing northward on an as yet undetermined route to connect with I-30 in Arkansas and ultimately Kansas City."

C. Highway Feasibility Corridor Study, Kansas City, Missouri to Shreveport, Louisiana, 1988

In a cooperative effort, the Louisiana Department of Transportation and Development (LaDOTD), the Arkansas State Highway and Transportation Department (AHTD), the Missouri Highway and Transportation Department (MHTD), and the Texas State Department of Highways and Public Transportation (TxDOT) studied the feasibility and necessity of constructing a highway from Shreveport, Louisiana to Kansas City, Missouri. The proposed highway would connect I-435 at Kansas City with I-49, which is currently under construction in Louisiana from I-10 at Lafayette to I-20 in Shreveport.

The study also relates the benefits of the proposed highway facility to the National Defense. There are thirteen Department of Defense (DOD) installations within a fifty mile radius of the proposed facility and ten additional DOD installations within 100 miles of the proposed highway. The highway corridor between Lake Charles, Louisiana and Kansas City, Missouri is part of the Strategic Highway Corridor Network (STRAHNET).

The DOD supports the corridor location because of the magnitude of the expected defense benefits, described in the study as follows: *".....it would strengthen defense strategic mobility by adding flexibility for units mobilizing to staging areas and deploying to air and sea ports of embarkation. It would also aid during readiness exercises and defense emergencies as well as adding to the safety and convenience of military personnel, dependents, and civilians living and working in the corridor."*

In addition, the new highway facility is expected to greatly improve traffic service in the corridor and substantially reduce accidents and fatalities. The study identified no major environmental or social impacts in the corridor.

The enactment of the NAFTA legislation will further enhance the importance of this highway. Corridor One will provide a major highway link between Canada and the Gulf Coast ports of New Orleans and Houston, thereby, providing market access not only to Mexico but to Central and South America.

D. Shreveport-Bossier City Transportation Plan 1990-2010, 1990

The 1990 new comprehensive transportation plan updates the SMATS study prepared in 1968. the new transportation plan is based on a computer modeling technique which applies projected traffic demand, based on population and employment projections, to the existing and committed transportation network. Transportation system priorities were established through the year 2010. The recommended 2010 Program included extension of I-49 as the North-South Expressway.

Environment

Environmental data is presented in four categories:

1. Physical Environment
2. Natural Environment

- 3. Social Environment
- 4. Economic Environment

1. Physical Environment

Data collected relates to information about the physical and geographical character of the study area.

Mapping

Aerial photography obtained in 1993 by LaDOTD was provided at a scale of 1 inch equals 200 feet. Photography provided on individual prints approximately 15" x 15" was used primarily to identify physical features not shown on quadrangle maps. USGS quadrangle maps of the study area were obtained in traditional printed form, but utilization of computer generated USGS traditional quadrangle maps were used as base maps for plan-profile configuration of alternative alignments and for development of exhibits identifying environmental concerns.

Topographic maps (available from the City of Shreveport and Caddo Parish) were utilized for areas within the Metropolitan Planning area (five miles beyond City limits). These are at a scale of 1"=400' with two foot contours. The City, Parish and Northwest Louisiana Council of Governments are scheduling an update and expansion of the mapping area during 1995.

Existing Highways

Within the study limits, most of the roadways are two-lane except for the following four and five-lane roadways:

- Interstate 220
- US 71 and La 1 between Interstate 220 and La 538
- La 3194 between La 173 and US 71/La 1

Interstate 220 is classified as a freeway with full control of access and grade separation at all major highway or arterial roadway intersections including grade separations at US 71/La 1 and at La 173. I-220 constructed to interstate standards (24-foot concrete roadways, asphaltic shoulders and a wide grassed depressed median) is in excellent condition and is well maintained.

Arterial roadways are generally four lane and serve as feeders to freeways and expressways and as principal travelways between major land use concentration within the study area. US 71 and La 1 may be classified as arterial roadways, as well as La 3194 which was upgraded recently from 2-lane, asphalt paved roadway with drainage ditches to a 5-lane concrete roadway with a subsurface drainage system. The two lane section of La 1 and US 71 have asphaltic overlay surface on concrete pavement and asphaltic surfaced shoulders of varying widths. Condition of roadway appears good and well maintained.

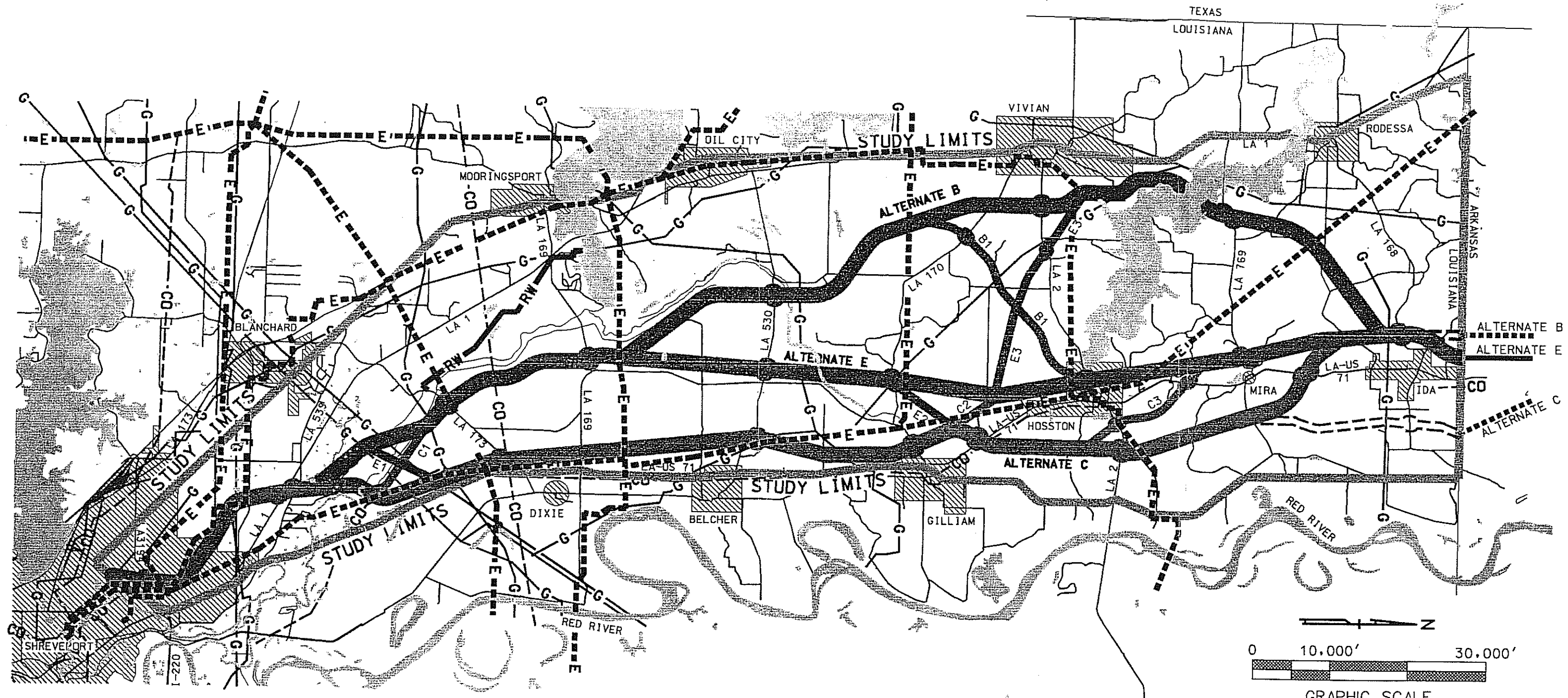
Collectors are primarily two lane roadways which provide land service and traffic movement functions. All state highways within the study area are collectors which serve as intermediate feeders between arterials and freeways and accommodate short distance trips. La 2 is a major state highway across the northern part of Caddo Parish from the Texas state line to Vivian and Hosston, crossing the Red River to connect with La 3 at Plain Dealing in Bossier Parish and extends eastward across north Louisiana to US 65 north of Lake Providence, Louisiana. Roadways for the collector system, La 173, La 169, La 530, La 170, La 168 and La 2, are asphaltic concrete roadways on unknown base material and varying width and surfacing of shoulders. Conditions of these roadway appears good.

Existing and Proposed Utilities

Major electrical and petroleum product transmission lines traverse the study area. The City of Shreveport has a major water transmission line between Caddo Lake and Twelve Mile Bayou near Shreveport. The electric transmission lines originate at the Southwestern Electrical Power Company generating plant located near downtown Shreveport and provides power to north Caddo Parish, East Texas and Southwest Arkansas area. Petroleum product lines include gas, oil and petroleum lines which originate and terminate outside the study area. Information of proposed addition to transmission lines was not available. See Exhibit C for general location of major utility transmission lines.

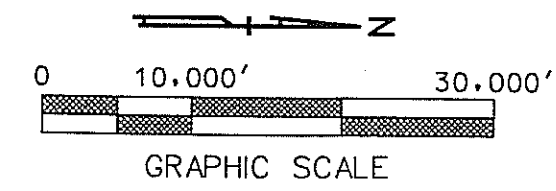
Land Use

Land use outside of the City of Shreveport, Vivian, and other communities within the study area, is primarily rural, (Exhibit D). Existing land use consists of agricultural (including prime farmland), oil production fields, forest, scattered residential and commercial development and small industrial facilities. Each of these are more fully described under Environmental.




LEGEND

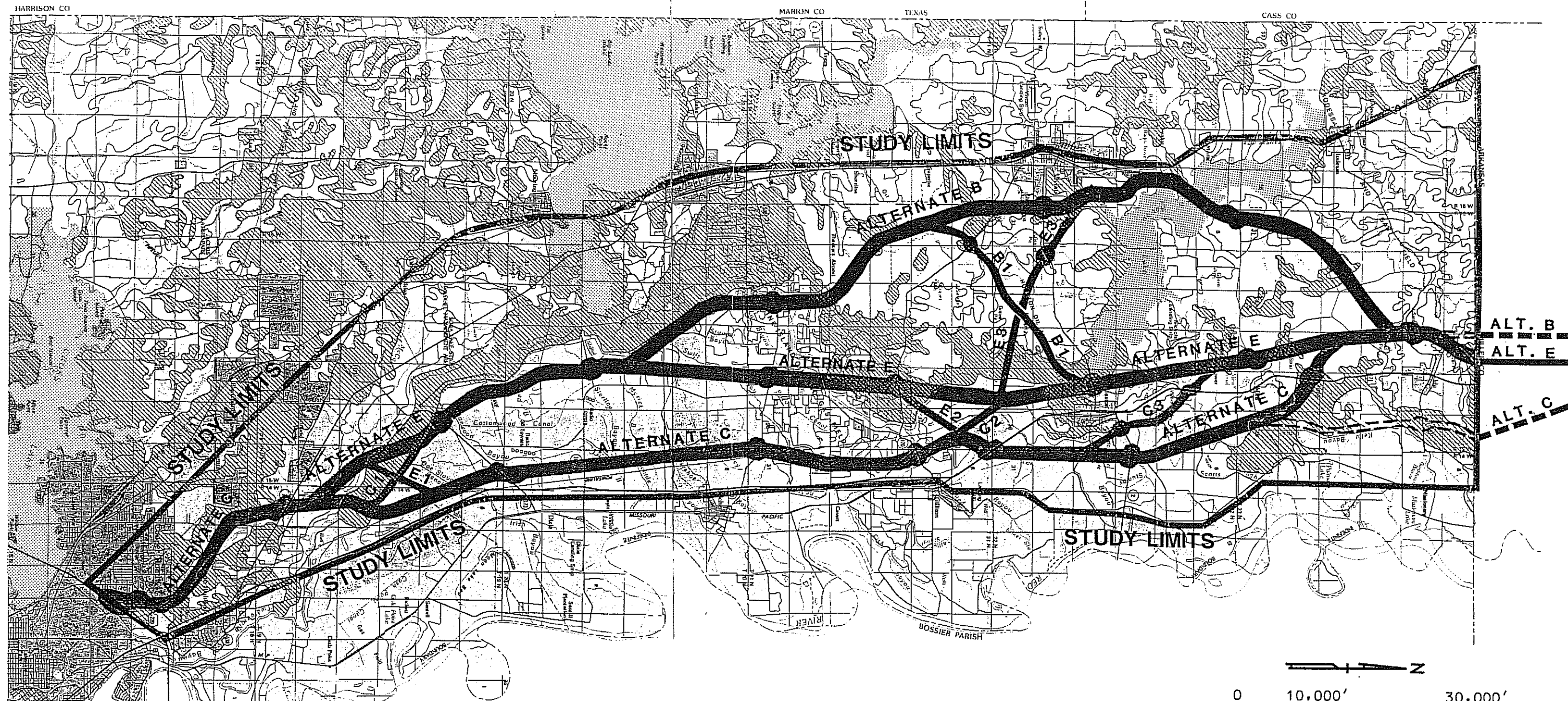
TRANSMISSION ELECTRIC	-----E-----	TRANSMISSION GAS (8" & LARGER)	——G——
TRANSMISSION RAW WATER	——RW——	TRANSMISSION CRUDE OIL (8" & LARGER)	---CO---



**EXHIBIT C
EXISTING MAJOR UTILITIES**

NORTH-SOUTH EXPRESSWAY
I-220 TO ARKANSAS STATE LINE
STATE PROJECT NO. 700-24-0072
FEDERAL AID PROJECT NO. DE-NHS-0009 (801)
CADDO PARISH

 **DEMOPIULOS AND FERGUSON, INC.**
CONSULTING ENGINEERS



LEGEND

PRIME FARMLAND
TOTAL ACRES - 295,450

UNIQUE FARMLAND
OTHER THAN PRIME
TOTAL ACRES - NONE REPORTED

ADDITIONAL AND LOCAL FARMLAND
OF STATEWIDE IMPORTANCE
TOTAL ACRES - 137,480

OTHER LAND

WATER AREAS

APPROXIMATE LIMITS
OF URBAN GROWTH
TOTAL ACRES - 74,880

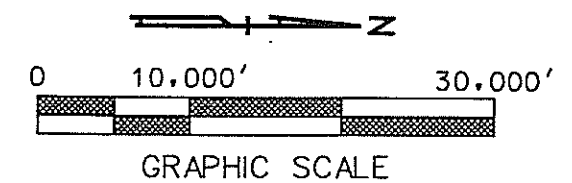


EXHIBIT D LAND USE

NORTH-SOUTH EXPRESSWAY
I-220 TO ARKANSAS STATE LINE
STATE PROJECT NO. 700-24-0072
FEDERAL AID PROJECT NO. DE-NHS-0009 (801)
CADD0 PARISH

DEMOPULOS AND FERGUSON, INC.
CONSULTING ENGINEERS

Within the City of Shreveport, the study area includes residential development on the extreme easterly side of the Martin Luther King area and the neighborhoods generally referred to as the Pine Hills area. In addition, a large part of the study area between I-220 and La 1 is within a floodplain area having scattered minor structures related to small farm and cattle operations. See Exhibit D: Land Use.

2. Natural Environment

Natural Environment relates to those elements which impact public health and well being .

Air Quality

The Louisiana Department of Environmental Quality, Air Quality Division, monitors for ozone (O₃) and Total Suspended Particulates (TSP's) at selected locations within the corridor study area.

Currently, all parishes in northwestern Louisiana meet the National Ambient Air Quality Standards (NAAQS) for Total Suspended Particulates (TSP's). Caddo Parish is also in attainment for ozone.

Floodplains

Floodplains are defined in Executive Order 11988, Floodplain Management, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year, "i.e., the area that would be inundated by a 100-year flood". Executive Order 11988 directs Federal agencies to "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains..."

A base floodplain is the relatively flat area adjacent to rivers and streams that receive flood waters at least once in every 100 years. Construction in floodplains is dangerous to the residents or business occupants within the floodplain and it has the potential to affect flood extents and frequencies upstream or downstream of the structures. Federal agencies are directed to avoid building or authorizing buildings in floodplains unless mitigation has been made such that flood frequencies are not increased.

Federal Emergency Management Agency (FEMA) floodplain maps were used to determine the extent of the 100-year floodplain. These floodplains are depicted on Exhibit E.

Wetlands

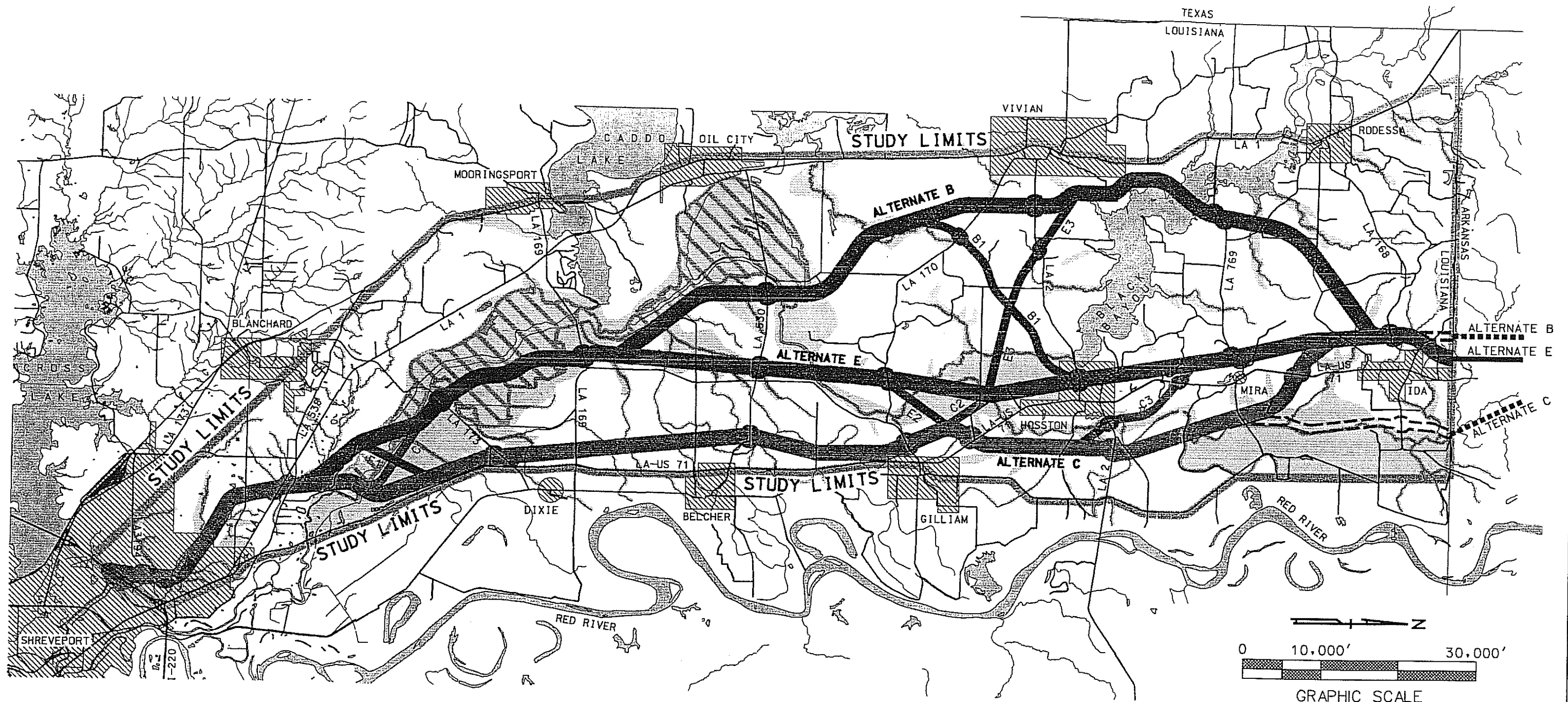
A number of wetland areas are located within the corridor study area. By definition (U.S. Army, Corps of Engineers, 33 CFR 328.3), wetlands are: those areas that are inundated or saturated by surface water or ground water (resulting from permanent or periodic hydrologic events that effect such conditions) at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands must possess three components to be classified as jurisdictional: hydrophytic vegetation, hydric soil, and the appropriate hydrology.

Wetland areas were identified for purposes of this study, with the aid of soil survey information and field reconnaissance. General limits of floodplain and wetlands within the study limits are shown on Exhibit E.

Most of the wetland areas encountered within the corridor are small drainage swales, or floodplain wetlands associated with river or stream crossings. Scattered farm ponds and patches of scrub-shrub and emergent vegetation also occur within the area. Caddo Lake, Black Bayou Lake, and the Caddo-Pine Island Oil and Gas Field are the main areas of wetlands.

Water Quality and Scenic Streams

According to the Louisiana Department of Wildlife and Fisheries, Natural Heritage and Scenic Streams Program personnel, no state listed scenic streams or federally listed wild and scenic rivers exist within the study corridor. However, Caddo Lake was proposed for designation as a Wetland of International Importance in October, 1993. This designation would make Caddo Lake part of a multinational ecological agreement to protect fragile ecosystems. Also, in May 1993, the U.S. Fish and Wildlife Service (USFWS) designated Caddo Lake a Resource Category 1 Habitat. This category offers the highest degree of protection under the USFWS Mitigation policy. Caddo Lake's high-valued habitat, uniqueness, and lack of replaceability provides ample reasons for listing as a Resource Category 1 Habitat.



LEGEND

FLOODPLAIN	
WETLANDS (WITHIN FLOODPLAINS)	
WETLANDS (LAKES & RIVERS)	
WETLANDS (BAYOUS & STREAMS)	

EXHIBIT E FLOODPLAIN/WETLANDS

NORTH-SOUTH EXPRESSWAY
I-220 TO ARKANSAS STATE LINE
STATE PROJECT NO. 700-24-0072
FEDERAL AID PROJECT NO. DE-NHS-0009 (801)
CADD O PARISH

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CONSULTING ENGINEERS

Soils

The North-South Expressway Study Corridor between Shreveport and the Arkansas State Line traverses three general soil areas. These include uplands, stream terraces, and the Red River alluvial plain.

The nearly level to strongly sloping soils on the uplands and stream terraces are dissected by well defined drainageways. Soils in these areas range from clayey to sandy, and are generally low in natural fertility. Soil associations include Keithville-Woodtell-Metcalf, Bowie-Metcalf-Keithville, Forbing-Gore-Wrightsville, Woodtell-Meth, Sacul-Ruston, and Betis-Briley-Darden. The nearly level alluvial plain of the Red River and its major distributaries makes up the majority of the eastern portion of the study area. Soils range from loamy to clayey and possess a high natural fertility. Soil associations include Guyton, Moreland-Armistead, Buxin, Severn-Norwood, and Caspiana-Gallion.

A number of soils within the study are classified as hydric soils. The definition of a hydric soil is a soil that in its undrained condition is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. Hydric soils are an indication of wetland areas and if possible should be avoided.

Floral Communities

The study limits traverse three basic natural vegetative regions: riparian forest, cottonwood-sycamore-willow forest, and oak-hickory-shortleaf pine forest. Riparian forests are relatively narrow wetland forests occurring along small rivers and large creeks. They are annually flooded for brief periods, typically during the spring. Common species include southern magnolia (Magnolia grandiflora), swamp white oak (Quercus michauxii), red maple (Acer rubrum), ironwood (Carpinus caroliniana), and arrowwood (Viburnum dentatum).

Cottonwood-sycamore-willow associations are typically classified as bottomland forests. Bottomland forests may be called a fluctuating water level ecosystem characterized and maintained by a natural hydrologic regime of alternating wet and dry periods. These forests support distinct assemblages of plants and animals associated with particular landforms, soils, and hydrologic regimes. Typical species include cottonwood (Populus deltoides), sycamore (Platanus occidentalis), black willow (Salix nigra), water oak (Quercus nigra), and swamp black gum (Nyssa sylvatica var. biflora).

Oak-hickory-shortleaf pine forests occur on dry hills principally in the western portion of the corridor study area. Common species include southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), black hickory (*Carya texana*), mockernut hickory (*Carya tomentosa*), shortleaf pine (*Pinus echinata*), winter huckleberry (*Vaccinium arboreum*), and rusty blackhaw (*Viburnum rufidulum*).

The western half of the study corridor is dominated by the oak-hickory-shortleaf pine forest with tracts of bottomland hardwoods (cottonwood-sycamore-willow) associated with the Black Bayou drainage. The eastern portion of the study area is predominately agricultural with soybeans and cotton making up the majority of the area. Tracts of natural vegetation have been cleared and put into agricultural production and commercial pine forest. Pastures are commonly planted with perennial grasses such as bermuda, bahia, and fescue along with suitable legumes.

Although much of northwestern Louisiana is still covered in native vegetation, undisturbed examples of natural communities are rare, and essentially no virgin habitat remains. The major threats to the integrity and viability of Louisiana's natural communities include intensive timber management, forest clearing for agricultural purposes, urban expansion and residential/commercial growth, and exploration for and commercial development of oil, gas, sand, gravel and other mineral resources. Landfill operations, indiscriminate use of herbicides, fire suppression, cattle grazing, toxic wastes, and introduction of exotic flora are also major threats (Louisiana Natural Heritage Program, 1988).

Faunal Communities

Vertebrate wildlife community composition and habitat were assessed for the North-South Expressway Corridor Study through a combination of field inspections, agency contact, and a literature review.

The major wildlife habitats present include riparian forest, cottonwood-sycamore-willow forest, oak-hickory-shortleaf pine forest, Black Bayou Lake, Caddo Lake, and numerous small ponds and stream associated environs. The floral composition and characteristics of these habitats are described in the floral communities section.

The habitats present support a variety of resident and transient wildlife. The habitats and fauna observed are fairly typical of northwestern Louisiana ecological communities which have undergone

some disturbance by human activity. Species composition and habitat distributions are not static but can, and typically do, vary seasonally and annually. Seasonal changes in composition are most evident in the bird fauna, resulting from the arrivals and departures of seasonal residents as well as ephemeral visits by migratory species that may pass through the area during travel to their summer or winter ranges. In contrast to these avian species, most of the other vertebrates within the corridor are likely to be year-round residents. Their abundances may vary annually to a considerable extent, depending on a variety of ecological factors, including food availability, cover, and climate.

The majority of the more common wildlife species display a general habitat distribution and are not restricted to a particular habitat type. Mammals in this category include the opossum (Didelphis marsupialis), nine-banded armadillo (Dasypus novemcinctus), eastern cottontail (Sylvilagus floridanus), white-footed mouse (Peromyscus leucopus), eastern gray squirrel (Sciurus carolinensis), striped skunk (Mephitis mephitis), raccoon (Procyon lotor), and white-tailed deer (Odocoileus virginianus). Among amphibians and reptiles, the green anole (Anolis carolinensis carolinensis), rat snake (Elaphe spp.), and garter snake (Thamnophis spp.) are likely to occur in many areas of the study corridor. Common birds ranging among the various habitats along the study corridor include the turkey vulture (Cathartes aura), red-tailed (Buteo jamaicensis) and red-shouldered hawks (Buteo lineatus), American crow (Corvus polyglottos), and cardinal (Cardinalis cardinalis). Typical fish species found in the ponds, rivers, and bayous include the mosquitofish (Gambusia affinis), gizzard shad (Dorosoma cepedianum), bowfin (Amia calva), spotted sucker (Minytrema melanops), and sunfish (Lepomis spp.). For Wildlife Management Area and Game and Fish Preserve locations within the study area, see Exhibit F.

Oil, Gas, and Lignite Resources

The Louisiana Geological Survey (LGS) and the Louisiana Department of Natural Resources (LDNR), Office of Conservation, were contacted regarding the location of oil, gas, and lignite fields within the corridor study area. Oil and natural gas fields occur extensively throughout the corridor, and include the Caddo-Pine Island, Hosston, and Rodessa Fields. No lignite fields have been identified within the study area. All known oil and gas fields are depicted on Exhibit G.